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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,995	12/15/2004	Akihiro Kuroda	5576-173	7261
20792	7590	03/27/2006	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC			KIRKLAND III, FREDDIE	
PO BOX 37428			ART UNIT	
RALEIGH, NC 27627			PAPER NUMBER	
			2855	

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/517,995	<b>Applicant(s)</b> KURODA ET AL.	
	<b>Examiner</b> Freddie Kirkland III	<b>Art Unit</b> 2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-13 is/are rejected.
- 7) ☒ Claim(s) 9 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/15/04, 5/16/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-8, and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garshelis US Patent 6,553,847 in view of Maeda et al. US Patent 6,423,158.

With respect to claims 1, 5-7 and 12-13, Garshelis teaches a torque transducer (2) comprising a magnetostrictive detection portion and an engaging portion for engaging a power transmission shaft (col. 6 lines 8-30), containing 3 to 30 wt% Ni (col. 8 lines 16-59, and col. 24 lines 20-25), comprising the steps of carburization on a surface of at least the engaging portion (col. 20 lines 29-60, carburized alloy steel) and wherein the torque transducer comprises a magnetostrictive material and comprises a paramagnetic layer having a content of retained austenite (col. 24 lines 12-67 and col. 25 lines 1-40). But Garshelis fails to teach the retained austenite layer being at least 50vol%.

Maeda teaches a method of carburization wherein that amount of retained austenite on a surface is at least 50vol% (col. 2 lines 1-65).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of carburization from the Maeda invention in the invention of Garshelis in order to increase the amount of retained austenite in the torque transducer (Maeda col. 1 lines 40-44).

With respect to claim 4, Garshelis teaches wherein the torque transducer comprises ferromagnetic material (col. 22 lines 36-67 and col. 23 lines 1-18).

With respect to claim 8, Maeda teaches wherein the carbon potential in the step of carburization is at least 0.8wt% (col. 2 lines 27-60).

Claims 3 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garshelis US Patent 6,553,847 in view of Maeda et al. US Patent 6,423,158 as applied to claim 1 above, and further in view of Satoh et al. US Patent 5,105,667.

With respect to claim 3, Garshelis in view of Maeda fails to teach the paramagnetic layer being at least 300 micrometers.

Satoh teaches a strain measuring device wherein a magnetic shielding layer is at least 300 micrometers (col. 3 lines 50-60, has a thickness of about 200 micrometers, which means that the thickness could be more than 200 micrometers).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the layer thickness from the Satoh invention in the invention of Garshelis in view of Maeda in order to better insulate the magnetostrictive layers from each other (Satoh col. 3 lines 50-60).

With respect to claim 10, Garshelis teaches wherein the torque transducer comprises ferromagnetic material (col. 22 lines 36-67 and col. 23 lines 1-18).

Art Unit: 2855

With respect to claim 11, Garshelis teaches a magnetostrictive torque sensor comprising a magnetostrictive shaft (col. 6 lines 8-30).

***Allowable Subject Matter***

Claims 9 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Claims 9 and 14 are found to be allowable over the prior art because the prior art does not disclose or suggest the claimed "prior to the step of carburization treatment, a step of anti-carburization treatment on the magnetostrictive detection portion, and after the step of carburization treatment, a step of removing anti-carburization treated portion to expose a magnetostrictive material on a surface of the magnetostrictive detection portion" in combination with the remaining claim steps as set forth in claims 9 and 14.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freddie Kirkland III whose telephone number is 571-272-2232. The examiner can normally be reached on Monday through Friday 8am-5pm.


Art Unit: 2855

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FKIII

3/20/06



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